



# News Release

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## Rolls-Royce, Woodward L'Orange and WTZ jointly develop methanol engine for marine applications

- Goal: low-emission, high-speed combustion engine for ships
- New development contributes to decarbonization by running on green methanol
- German Federal Ministry for Economic Affairs and Climate Protection funds "MeOHmare" research project

Rolls-Royce (LSE: RR., ADR: RYCEY), Woodward L'Orange and WTZ Roßlau have been working since the beginning of 2023 on the new joint project "MeOHmare", which is receiving eight million euros in funding from the German Federal Ministry of Economics and Climate Protection. They have now confirmed their goals at a kick-off meeting in Friedrichshafen: By the end of 2025, the three partners will develop a concept for a high-speed internal combustion engine for ships that can run on green methanol in a CO<sub>2</sub>-neutral manner.

Dr Daniel Chatterjee, responsible for technology strategy and sustainability at alliance coordinator Rolls-Royce Power Systems, said:

"We are grateful for the funding and are convinced that with this experienced alliance of engine manufacturer, injection system supplier and research institute, we will successfully get the methanol engine on the water."

Dieter Janecek, maritime coordinator for the German government, said at the kick-off meeting:

Decarbonization in shipping is a very big concern for us. We see great opportunities for new marine propulsion technologies and sustainable fuels, such as methanol, so we want to support the market ramp-up."

### Why methanol as fuel for future ships?

If methanol is produced using the so-called power-to-X process, CO<sub>2</sub>-neutral operation is possible. By means of electrolysis and by using electricity from renewable sources, green hydrogen is produced. This hydrogen can be further processed into so-called e-methanol by synthesis, with the addition of CO<sub>2</sub> from the air.

Dr Daniel Chatterjee said:

"We see methanol as the future fuel for ships. It is a fuel that is already used in the chemical industry"

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The German Federal Ministry of Economics and Climate Protection promotes the development within the framework of the "Maritime Research Program" and thus supports the expansion of innovative products in future fields of shipbuilding, the offshore industry and marine technology. The funding program, with an annual funding volume of around 60 million euros, strengthens the innovative power of the maritime sector in international competition and promotes the protection of the climate and the environment. At the same time, highly qualified jobs are secured in Germany.

### **Fundamental new developments necessary**

Methanol, a new fuel for shipping, requires significant changes to the engine concept.

Mathias Müller, project manager at Rolls-Royce Power Systems and MeOHmare's project coordinator, explained:

"The focus of development activities is on redesigning the combustion process with fuel system, turbocharging and engine control as well as all fuel-interacting engine subsystems."

Woodward L'Orange, the Stuttgart-based manufacturer of injection systems for large engines, will completely redevelop the high-performance injection systems in the project.

Dr. Michael Willmann, Director Technology at Woodward L'Orange, said:

"So far, there are no production-ready injection systems for high-speed methanol marine engines. Methanol is a challenging fuel due to its properties. That's why new materials and injector concepts have to be introduced."

The non-profit research institution Wissenschaftlich-Technisches Zentrum Roßlau (WTZ Roßlau gGmbH) will be responsible for setting up a methanol endurance test rig, testing injection components and developing a methanol feed pump as part of the alliance.

Dr.-Ing. Christian Reiser, CEO at WTZ Roßlau gGmbH, explained:

"With this project, we are laying the foundation for the establishment of a test center for the validation of injection systems with alternative fuels."

Rolls-Royce's business unit Power Systems will develop an engine concept based on the mtu Series 4000 that will be designed for low-emission, CO<sub>2</sub>-neutral and economical operation of ships with methanol. Climate and environmental friendliness as well as the highest possible power density of the propulsion system are the particular focus of the development.

Imagery is available for download from: [Media Center \(mtu-solutions.com\)](https://www.mtu-solutions.com)

### **About Rolls-Royce Holdings plc**

1. Rolls-Royce develops and delivers complex power and propulsion solutions for safety-critical applications in the air, at sea and on land. Our products and service packages enable our customers to connect people, societies, cultures and economies together; they meet the growing need for power generation across multiple industries; and enable governments to equip their armed forces with the power required to protect their citizens.
2. Rolls-Royce has customers in more than 150 countries, comprising more than 400 airlines and leasing customers, 160 armed forces and navies, and more than 5,000 power and nuclear customers. To meet customer demand for more sustainable solutions, we are committed to making our products compatible with net zero carbon emissions.
3. Annual underlying revenue was £12.69bn in 2022 and underlying operating profit was £652m.
4. Rolls-Royce Holdings plc is a publicly traded company (LSE: RR., ADR: RYCEY, LEI: 213800EC7997ZBLZJH69)
5. Rolls-Royce Power Systems is headquartered in Friedrichshafen in southern Germany and employs more than 9,500 people. The product portfolio includes mtu-brand high-speed engines and propulsion systems for ships, power generation, heavy land, rail and defence vehicles and for the oil and gas industry as well as diesel and gas systems and battery containers for mission



critical, standby and continuous power, combined generation of heat and power, and microgrids and is intensively engaged in the development of climate-neutral solutions.

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#### **About Woodward L'Orange**

Woodward and Woodward L'Orange have stood for innovation, expert knowledge and experience as a frontrunner in state-of-the-art technology. The long-established companies develop, manufacture and distribute cutting-edge engine components and control systems for large engines ranging from 1,000 to 40,000 kW. The companies currently employ over 8,700 people at its numerous locations worldwide.

The wide-ranging product portfolio includes digital controls and software, air-exhaust flow control, governors, combustion/ignition and injection technology, including state-of-the-art common rail technology for off-highway diesel, power-to-x and heavy fuel oil applications. These products are deployed in ships, power plants, trains, heavy-duty vehicles and many other applications.

#### **About WTZ Roßlau gGmbH**

WTZ Roßlau gGmbH is a non-profit, independent research company and specializes in the processing of scientific and technical tasks in the field of energy conversion. For over 70 years, products and processes have been developed and tested at the site in Dessau-Roßlau in the fields of engine, energy, machine and equipment technology. The WTZ is equipped with a high degree of individual research content in the field of large engine development and offers development partners complete solutions from a single source. The main focus of the activities of WTZ Roßlau gGmbH is on the use of renewable energies to reduce carbon dioxide emissions. The focus is on research topics in the pre-competitive area with a high degree of innovation for CO<sub>2</sub> minimization, efficiency increases, the use of alternative (regenerative) fuels, emission reduction, exhaust gas heat utilization and increased operational stability.